



McCahon, D., Haque, M. S., Parle, J., Hobbs, F. D. R., & Roberts, L. (2020). Subclinical thyroid dysfunction symptoms in older adults: cross-sectional study in UK primary care. *British Journal of General Practice*, 70(692), e208-e214. <https://doi.org/10.3399/bjgp20X708065>

Peer reviewed version

Link to published version (if available):
[10.3399/bjgp20X708065](https://doi.org/10.3399/bjgp20X708065)

[Link to publication record in Explore Bristol Research](#)
PDF-document

This is the author accepted manuscript (AAM). The final published version (version of record) is available online via British Journal of General Practice at <https://bjgp.org/content/70/692/e208/tab-article-info>. Please refer to any applicable terms of use of the publisher.

University of Bristol - Explore Bristol Research

General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

Table 1. Classification of thyroid status based upon TSH and FT4 concentration

Thyroid status	Serum thyrotrophin (TSH) mIU/L	Serum thyroxine (FT4) pmol/L
Overt hyperthyroidism	<0.30	>10
Subclinical hyperthyroidism	< 0.30	10-22
Euthyroid	0.3 – 4.5	10-22
Subclinical hypothyroidism	>4.50	10-22
Overt hypothyroidism	>4.50	<22

Table 2. Prevalence of hypothyroid symptoms and risk factors for subclinical hypothyroidism

Symptoms	Euthyroid n=2703 % (95% CI)	Subclinical hypothyroidism n=138 % (95% CI)	Unadjusted OR (95% CI) p value	Adjusted OR ^a (95% CI) p value
9 symptoms typically associated with overt hypothyroidism				
Hoarse voice	6.0 (5.2-7.0)	8.0 (4.5-13.8)	1.3 (0.7-2.6) 0.35	1.4 (0.7-2.8) 0.24
Deep voice	6.4 (5.5-7.4)	9.5 (5.6-15.6)	1.5 (0.9-2.8) 0.15	1.5 (0.8-2.7) 0.23
Dry skin	32.2 (30.4-34.0)	33.3 (26.0-41.6)	1.1 (0.7-1.5) 0.78	1.0 (0.7-1.5) 0.87
Puffy eyes	13.3 (12.1-14.7)	15.9 (10.8-23.0)	1.2 (0.8-2.0) 0.38	1.2 (0.7-1.9) 0.48
Muscle cramps	15.1 (13.8-16.5)	15.2 (10.2-22.1)	1.0 (0.6-1.6) 0.97	0.9 (0.6-1.5) 0.80
Constipation	13.2 (11.9-14.5)	14.5 (9.6 -21.3)	1.1 (0.7-1.8) 0.65	1.0 (0.6-1.7) 0.99
Sensitivity to cold	34.8 (33.0-36.7)	37.2 (29.6-45.6)	1.1 (0.8-1.6) 0.56	1.1 (0.8-1.6) 0.64
Slow thinking	7.9 (6.9-8.9)	11.6 (7.3-18.9)	1.5 (0.9-2.6) 0.12	1.5 (0.9-2.7) 0.13
Weight gain	48.5 (46.7-50.4)	53.6 (45.3-61.7)	1.2 (0.9-1.7) 0.24	1.2 (0.9-1.8) 0.25
3 symptoms which can be associated with overt hyper or hypothyroidism				
Poor memory	9.7 (8.6-10.9)	8.0 (4.5-13.7)	0.8 (0.4-1.5) 0.50	0.8 (0.4-1.6) 0.56
Weak muscles	14.3 (13.0-15.7)	14.5 (9.6-21.3)	1.0 (0.6-1.7) 0.95	01.0 (0.6-1.7) 0.90
Lethargy	16.4 (15.0-17.8)	10.9 (6.7-17.3)	0.6 (0.4-1.1) 0.10	0.6 (0.4-1.1) 0.12
Multiple symptoms				
Total number of symptoms reported	Median (IQR) 2.0 (2.0)	Median (IQR) 2.0 (2.0)	1.0 (0.95-1.1) 0.33	1.0 (0.9-1.1) 0.44

^a adjusted odds of subclinical hypothyroidism after controlling for sociodemographic factors (age, gender, deprivation score, smoking status) and concomitant disease and prescription medication.

Bonferroni adjusted alpha value to control for type 1 error resulting from multiple comparisons = 0.004

Table 3. Prevalence of hyperthyroid symptoms and risk factors for subclinical hyperthyroidism

Symptoms	Euthyroid n= 2703 % (95% CI)	Subclinical hyperthyroidism n=29 % (95% CI)	Unadjusted OR (95% CI) p value	Adjusted OR ^a (95% CI) p value
6 symptoms typically associated with hyperthyroidism				
Heavy perspiration	3.1 (2.5-3.8)	3.4 (0.6-17.2)	1.1 (0.2-8.3) 0.92	1.4 (0.2-10.9) 0.73
Trembling hands	4.3 (3.6-5.1)	3.4 (0.6-17.2)	0.8 (0.1-6.0) 0.83	0.6 (0.8-5.0) 0.66
Frequent palpitation	6.0 (5.2-7.0)	6.9 (1.9-22.0)	1.2 (0.3-4.9) 0.85	1.3 (0.3-5.9) 0.72
Sensitivity to heat	10.7 (9.6-11.9)	13.8 (5.5-30.4)	1.3 (0.5-3.9) 0.59	1.6 (0.5-4.7) 0.42
Fast thinking	22.7 (21.1-24.3)	31.0 (17.3-49.2)	1.5 (0.7-3.4) 0.29	1.4 (0.6-3.2) 0.42
Weight loss	7.4 (7.0-9.1)	3.4 (0.6-17.2)	0.4 (0.1-3.3) 0.43	0.4 (0.05-2.8) 0.33
3 symptoms which can be associated with overt hyper or hypothyroidism				
Poor memory	9.7 (8.6-10.9)	0	0 1.0	0 0.99
Weak muscles	14.3 (13.0-15.7)	6.9 (1.9-22.0)	0.4 (0.1-1.9) 0.27	0.4 (0.1-1.9) 0.27
Lethargy	16.4 (15.0-17.8)	10.3 (3.6-26.4)	0.6 (0.2-2.0) 0.39	0.6 (0.2-2.0) 0.41
Multiple symptoms				
Total number of symptoms reported	Median (IQR) 1.0 (1.0)	Median (IQR) 1.0 (1.0)	0.9 (0.6-1.3) 0.44	0.8 (0.6-1.3) 0.41

^a adjusted odds of subclinical hyperthyroidism after controlling for sociodemographic factors (age, gender, deprivation score, smoking status) and concomitant disease and prescription medication.

Bonferroni adjusted alpha value to control for type 1 error resulting from multiple comparisons = 0.005